

UNITED STATES DISTRICT COURT  
SOUTHERN DISTRICT OF NEW YORK

-----X

LEIGHTON TECHNOLOGIES LLC,

Plaintiff,

- against -

04 Civ. 2496

OBERTHUR CARD SYSTEMS, S.A.,

Defendant.

-----X

DECISION AND ORDER DENYING DEFENDANT’S  
MOTION FOR SUMMARY JUDGMENT

McMahon, J:

**Facts**

Plaintiff Leighton Technologies LLC is assignee of four related patents in the field of manufacturing integrated circuit cards, also known as “IC cards” or, more commonly, “smart cards.” The patents describe a method of manufacturing contactless smart cards by lamination.

Conventional lamination techniques call for stacking unattached layers of polyvinyl chloride (PVC), polyester, or other plastic, possibly between layers of adhesive, to form a “book.” The book is placed between two metal plates which can be precisely heated, cooled, and weighted to apply heat and pressure to the book. Laminating devices range in size from single-card devices to high-capacity devices with several sets of plates stacked vertically.

Smart cards are credit-card-sized sheets of laminated plastic which contain embedded electronics – microchips, memory devices, antennae, etc. Some models of smart cards only

operate when placed in physical contact with another computer (called a reader), which communicates with the card through metal pick-ups on the card's surface. Newer models, called "contactless" smart cards, have built-in radio frequency antennae in place of metal contacts; to send and receive data, the card just has to be "swiped" past a radio transmitter. "Hybrid" or "dual-function" smart cards possess both a contact interface and a wireless antenna connected to the same microchip or storage device.

Although there are industry standards for the design and function of smart cards, there is no standard method of manufacturing them. Old methods involve "milling" (drilling a cavity into a card after lamination) and inserting electronics into the cavity. Another method involves encasing sensitive electronics in protective layers of plastic and laminating the components between sheets of PVC or other plastic. The insulating layer protects the components from the heat and pressure of lamination, but tends to produce thicker, less aesthetically pleasing cards.

#### A. Plaintiff's History

Keith Leighton, founder of Leighton Technologies, first noted the problems inherent in laminating smart cards while under contract to Motorola to produce contactless smart cards. Leighton Decl., ¶ 4. His initial attempts involved enclosing electronic elements directly within the books, and laminating the books with a printed circuit board (PCB) laminator. PCB laminators operate at higher heat and pressure than plastic card laminators, and used separate stacks for heating and cooling. *Id.* ¶¶ 5-6. Leighton had very little success in his initial attempt – many of the cards broke during lamination, and the remainder lacked a smooth surface and finish. *Id.* ¶ 7.

Leighton continued to research laminating techniques for contactless smart cards after the contract with Motorola expired, and ultimately seized upon a process that produced aesthetically pleasing devices at high yields and low cost. This process called for laminating a card containing electronic components in a specific sequence of temperatures and pressures which minimized damage to both the plastic sheets and the internal electronics. He patented his method in the four patents at suit in this case (“the Leighton patents”).

#### B. Plaintiff’s Patents

Leighton’s method, as described in his first patent, No. 5,817,207 (issued October 6, 1998), calls for the placement of electronic elements (such as microchips, wireless antennae, or other devices), “in the absence of a non-electronic carrier,” within the core of a book of plastic sheets, followed by the application of a specific cycle of heat and pressure. See ‘207 Patent, col. 6: lines 18-36. The heat and pressure cycle consists of (i) heating the core, then (ii) applying a first pressure to the core, and finally (iii) cooling the core while applying a second pressure. Id. at 6:30-36. The card could then be inked and overlaminated. Id. at 6:37-40. Subsequent dependent claims recite additional limitations related to specific pressure and temperature settings (claims 6 through 9), and the composition and thickness of the plastic sheets.

Plaintiff’s first draft of the claims, which did not recite the limitation that the electronics be placed in the book in “the absence of a nonelectronic carrier,” was rejected by the examiner during prosecution in light of U.S. Patent no. 4,450,024, which describes a similar process for lamination. (Def. Ex. 14). The claims were then amended to their present form.

Plaintiff’s second patent, Number 6,036,099 (issued March 4, 2000), describes a similar

process for the manufacture of hybrid smart cards. The first independent claim describes a process similar to that of the '207 patent, but provides a final step in which the metal contact plate is exposed by milling. '099 Patent, col. 9:3-5. Dependent claims in the '099 Patent also recite a second pressure between 10% and 40% of the first pressure (Id. at 9:35-36), although the description of the invention indicates that 25% is preferred.<sup>1</sup> Id. at 6:39. The process also describes the lamination of an upper sheet with a pre-milled cavity, with the cavity being filled by a removable spacer during lamination, rather than a final milling step. (Id. at 10: 32-56).

Plaintiff's third patent, number 6,214,155 (issued April 10, 2001), is a continuation of the '207 Patent. It recites method similar to that of the '207 Patent, but does not recite a final printing step. '155 Patent, 6:18-38.

Plaintiff's fourth patent, number 6,514,367 (issued February 4, 2003) is a continuation of the '099 Patent. In its first draft, it recited a method similar to that of the '099 Patent (for the manufacture of hybrid cards), but, like the '155 Patent, did not recite a final printing step.

However, during prosecution of the '367 Patent, the examiner discovered additional references which he determined to constitute prior art: Japanese Patent No. H6-176214 and UK Patent No. 2,279,610. Sharinn Decl., Ex. 7 at OCS\_C\_045452. The JP '214 patent, granted June 24, 1994, recites a "Thin-Type Contactless IC Card," in which electronic elements such as a microchip and a radio frequency antenna are arrayed between two sheets of plastic, and the entire unit is held together by "thermoccompression bonding" – another term for lamination.

---

<sup>1</sup>The dependent claims also recite a first pressure of approximately 450 p.s.i. (Id. at Col. 9, lines 51-52), different than the 1000 p.s.i. figure in the '207 Patent. '207 Patent, 7:10-13. However, documents contained in the prosecution history indicate that a ram pressure of 1000 p.s.i. equals approximately 450 p.s.i. of apparent pressure on the laminate. In other words, the two numbers seem to be equivalent.

Sharinn Decl., Ex. 24. The UK ‘610 Patent, dated November 1, 1995, recites a method of laminating smart cards (including contactless smart cards or other cards containing “inductive loop[s]” of material). Sharinn Decl., Ex. 18. The patent office found that JP ‘214 taught the encapsulation of electronic elements directly between sheets of laminate, while the UK ‘610 Patent taught a similar multi-step heat and pressure cycle during lamination. Sharinn Decl., Ex. 7 at OCS\_C\_045452-53.

Plaintiff responded to the above by further limiting the scope of the independent claims of the ‘367 Patent. The new claims disclosed a method in which the second pressure applied to the card during the lamination process was 10% greater (or more) than the pressure applied during the first pressure. ‘367 Patent, 9:1-3. With this limitation, the patent was issued.

The earliest effective filing date of plaintiff’s patent application is October 17, 1995. Def. SOMF ¶¶ 2-5.

### C. The Oakwood Series 6

Defendant’s arguments in favor of invalidity rely on a series of documents published by Oakwood Design, a British firm that designed and manufactured laminating devices between 1987 and 1991 under the brand name “Series 6.” The three documents in question are marketing brochures and technical specifications related to the capabilities of the Series 6 devices: one brochure entitled, “Oakwood Series 6 Laminators,” another entitled “Laminator Presses for Bank Card and Printed Circuit Board Production,” and the Instruction Manual for operation of several Series 6 Laminators. Declaration of Todd. S. Sharinn, Ex. 10-12.

The affidavit provided by the founder of Oakwood, Richard Smith, states that during the

1980s, the state of the art in PVC lamination called for a single-step process in which heat and pressure would be applied at the same time. Declaration of Richard Smith, ¶ 8. This approach was highly error-prone: either heat and high pressure would be applied, causing the printed material on the surface of the card to smear; or heat and low pressure would be applied, causing bubbling and other irregularities in the card surface. These problems led Smith to develop a two-step process, in which low pressure and heat would be applied during a first step, followed by an increase in pressure coupled with a decrease in temperature. Id. ¶ 9.

The Oakwood documents describe this two-step PVC lamination process, in which heat and moderate pressure would be applied first and then greater pressure would be applied as the temperature was reduced. Oakwood's "Lamination Presses" brochure includes a chart depicting the temperature and pressure applied to the cards over time. Sharinn Decl., Ex. 11 at 6.<sup>2</sup> This chart makes clear that heat and pressure are raised at the beginning of lamination, with pressure reaching a plateau slightly before the temperature reaches its highest point. Both temperature and pressure are held constant for a certain period, after which the pressure is doubled while the cards are cooled. Id. The diagram does not state specific times, temperatures, and pressures. Id.

A second Oakwood brochure, "Series 6 Laminators," describes how one can use the Series 6 laminator to embed microchips, electronics, inductive coils or magnetic strips into laminated PVC cards. One diagram in particular, entitled "Card Set for machine reading application," appears to depict a "sandwich" of several layers of plastic, including a printed later containing a photographic image, a framing layer, and a transparent cover, surrounding a layer of what could be inductive coils arrayed on a substrate. Sharinn Decl., Ex. 10 at 4. I say "appears

---

<sup>2</sup>The Oakwood brochures do not contain page numbers; page numbers are per my count.

to” because the diagram itself contains no descriptive labels. The diagram is unlabeled, but appears to depict a “sandwich” Text on the same page, but not linked to the diagram, reads, “Oakwood technicians are skilled in the use of PVC polyester and epoxy substrates and have packaged the most sophisticated micro chips within the core structure of a card.” *Id.* The “Series 6 Laminators” brochure does not contain the temperature and pressure chart from page 6 of the “Lamination Presses” brochure.

#### D. Procedural History

Defendant Oberthur Card Systems is a worldwide manufacturer of smart cards and other electronic devices. It manufactures smart cards overseas and imports them into the United States, and maintains control over United States subsidiaries who manufacture smart cards domestically. Cmplt., ¶¶ 12-13. Plaintiff filed the present complaint on March 30, 2004, alleging that defendant’s manufacture and importation of smart cards infringes on its four patents.

Defendant now moves for summary judgment on the grounds that the Leighton patents are anticipated by the Oakwood documents (35 U.S.C. § 102), or are obvious in light of the Oakwood documents and other prior art (35 U.S.C. § 103).

Oral argument was heard on April 4, 2006. I thank both sides for their interesting presentations.

#### **Discussion**

Oberthur's argument for summary judgment involves a two-step reasoning process. It first argues that Claim 20 of the '367 Patent, as well as claims 1, 6-8, and 11-14 of the '155 Patent, were anticipated by the Oakwood reference and so must be invalidated. It then asserts that the rest of the claims in suit are obvious within the meaning of 35 U.S.C. § 103 – thereby invalidating the patents in their entirety. At both steps, the argument for summary judgment fails.

#### A. Anticipation

35 U.S.C. § 102(b) provides that a patent will not issue if the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of the application for patent in the United States. “Anticipation under 35 U.S.C. § 102(b) requires the presence in a single prior art disclosure of each and every element of a claimed invention.” Electro Med. Sys., S.A. v. Cooper Life Sci., 34 F.3d 1048, 1052 (Fed. Cir. 1994). Where a claim is anticipated by a prior written document, such document must teach one skilled in the art to practice the invention “without undue experimentation.” Novo Nordisk Pharm., Inc. v. Bio-Technology General Corp. 424 F.3d 1347, 1355 (Fed. Cir. 2005).

Where a document does not explicitly disclose all elements of a claimed invention, it may nevertheless anticipate “by inherency” if the material omitted would be recognized by one skilled in the art as necessarily present. Continental Can Co. v. Monsanto Inc., 948 F.2d 1264, 1268 (Fed. Cir. 1991). Anticipation must be established by clear and convincing evidence. Id.

To show anticipation by a given reference: typically, testimony concerning anticipation must be testimony from one skilled in the art and must identify each claim element, state the witnesses' interpretation of the claim element, and explain in detail how each claim



element is disclosed in the prior art reference.

Koito Mfg. Co. Ltd. v. Turn-Key Tech., LLC, 381 F.3d 1142, 1152 (Fed. Cir. 2004). However, where the technology in question is “easily understood,” the factfinder may consider questions of infringement and invalidity without expert testimony. Prima Tek II, LLC v. Polypap S.A.R.L., 412 F.3d 1284, 1290 n.7 (Fed. Cir. 2005).

There are two problems that lead to denial of defendant’s motion.

First, there are disputed issues of material fact concerning whether the three Oakwood documents submitted by Oberthur, taken together, constitute a “single source” within the meaning of the anticipation doctrine and 35 U.S.C. § 102. The “sandwich” diagram appears in one reference and the temperature and pressure chart appears in another. The two must qualify as a single “reference” to constitute anticipatory prior art.

“[I]nvalidity by anticipation requires that the four corners of a single, prior art document describe every element of the claimed invention, either expressly or inherently, such that a person of ordinary skill in the art could practice the invention without undue experimentation.”

Advanced Display Sys., Inc. v. Kent State Univ., 212 F.3d 1272, 1282 (Fed. Cir. 2000).

On their face, the three separate Oakwood brochures do not appear to meet the single reference standard. Oberthur might have an argument if the documents were always distributed together and as part of a single bundle or package. But the record is devoid of any evidence on that issue. That alone warrants denial of the motion.

But there is another hole in the record. This Court cannot conclude, from looking at any of the Oakwood source material, that a person ordinarily skilled in the art of making laminated plastic cards would understand the “sandwich diagram” and the temperature-pressure chart to

disclose all of the elements of Claim 20 of the '367 patent. And there is no basis for me to conclude that the Oakwood materials satisfies the standard for anticipation "by inherency" as no one "skilled in the art" testified on the issue.<sup>3</sup> Continental Can Co. v. Monsanto Inc., 948 F.2d 1264, 1268 (Fed. Cir. 1991) (holding that where a document does not explicitly disclose all elements of a claimed invention, it may nevertheless anticipate "by inherency" if the material omitted would be recognized by one skilled in the art as necessarily present).

As a general rule, anticipation must be accompanied by expert testimony and must be established by clear and convincing evidence.

To show anticipation by a given reference: typically, testimony concerning anticipation must be testimony from one skilled in the art and must identify each claim element, state the witnesses' interpretation of the claim element, and explain in detail how each claim element is disclosed in the prior art reference.

Koito Mfg. Co. Ltd. v. Turn-Key Tech., LLC, 381 F.3d 1142, 1152 (Fed. Cir. 2004). Where the technology in question is "easily understood," the factfinder may consider questions of infringement and invalidity without expert testimony. Prima Tek II, LLC v. Polypap S.A.R.L., 412 F.3d 1284, 1290 n.7 (Fed. Cir. 2005). Oberthur argues that the technology in this case so qualifies. I disagree.

The "sandwich diagram" is captioned "Card set for a machine reading application" but is not otherwise labeled. The related text does not speak of the presence or absence of a "non-electronic carrier," as recited by claim 20. Defendant's assertions that the diagram would teach

---

<sup>3</sup>Oberthur relies on an affidavit by Barry Mosteller, Director of Product Development for Oberthur in its Exton, Pennsylvania facility, in which he discusses the "sandwich diagram." Mosteller Declaration, ¶¶ 9-17. However, at no point does he assert that the sandwich diagram *inherently* includes data on how such a composition would be laminated. However, even if he made such a claim, his averment would at best create a question of fact for the jury.

the presence of “at least one electronic element in the absence of a non-electronic carrier” to one of ordinary skill as a matter of “common sense” are not convincing. Indeed, on the record before me, there appears to be some disagreement as to what the sandwich diagram depicts, and whether such a construction anticipates the Leighton patents. See Deposition at Richard Smith at 106-107. A factfinder would need to weigh the expert testimony as to what a person skilled in the art could get out of the diagram and the accompanying text in order to decide on the issue of anticipation.

A factfinder would also need to hear from a person skilled in the art in order to ascertain whether the diagram showing the relationship between temperature, pressure and time, which Oberthur claims discloses the Leighton process, would in fact teach one of ordinary skill in the art the three-step cycle recited in claim 20(c)(i)– (iii). It is entirely possible that one skilled in the art would have to embark on considerable experimentation before he hit upon the precise combination of time, temperature and pressure that would result in a card with the quality of a Leighton card.

It is certainly not apparent to me – a person not skilled in any relevant art except the reading of documents – that the diagram discloses the elements of the Claim 20 process. Indeed, as I look at the diagram, I as an unskilled person would conclude that it does not disclose Claim 20, because it appears to me that there is an overlap between what is supposed to happen during the “first period” of the Claim 20 process (heating) and what is only supposed to occur during the “second period” of the Claim 20 process (encapsulation pressure). It may be that a person skilled in the art could explain to me (and to a jury) the error of my perception. Clearly, the issue must go to trial.

B. Obviousness

Oberthur claims that those claims in suit that are not anticipated by the Oakwood documents should nevertheless be invalidated as obvious under 35 U.S.C. § 103. Unlike a finding of anticipation, a finding of obviousness does not require that a single piece of prior art disclose all the elements of the claimed invention. Rather, a patented invention is obvious

if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains.

35 U.S.C. § 103(a) (2000). A finding of “obviousness” depends on factual findings as to the state of the prior art, the differences between the prior art and the claims, and the amount of skill that constitutes “ordinary skill in the art.” Advanced Display Sys., Inc. v. Kent State Univ., 212 F.3d 1272, 1284 (Fed. Cir. 2000).

Summary judgment cannot be granted on the issue of obviousness.<sup>4</sup>

Defendant relies on the Oakwood Manual, UK Patent ‘610, and U.S. Patents 5,519,201, 4,841,134, and 4,897,533 as evidence that Leighton’s claims (other than claim 20) would be obvious to one skilled in the art. However, Oberthur has not established that one skilled in the art would have combined these particular references so as to make the claims in the Leighton patents obvious.

“There must be some teaching, suggestion, or motivation in the prior art to select the

---

<sup>4</sup> Oberthur does not argue that claim 20 of the ‘367 Patent is obvious. Because there is a genuine issue of fact concerning the anticipation argument of claim 20, and because Oberthur relies on the Oakwood documents in its obviousness argument as well, there is no avoiding a trial.

teachings of separate references and combine them to produce the claimed combination.” In re Johnston, 435 F.3d 1381, 1384 (Fed. Cir. 2006). Such a teaching or motivation can be established by expert testimony regarding the nature of the problem and the level of knowledge of one skilled in the art at the time of the invention. Id. at 1385. However, this Court must rely on expert testimony for such a finding – it “cannot simply reach conclusions based on its own understanding or experience – or on its assessment of what would be basic knowledge or common sense.” In re Zurko, 258 F.3d 1379, 1386 (Fed. Cir. 2001) (reviewing a determination of the Board of Patent Appeals and Interferences).

The claims in suit, the prior art, and the knowledge of one or ordinary skill are “primary considerations” in the Court’s analysis, although I may also consider relevant “secondary” factors that would indicate a motivation to combine, such as the device’s commercial success, “long felt but unsolved needs,” and the failure of other inventors to succeed. Ryko Mfg. Co. v. Nu-Star Inc., 950 F.2d 714, 719 (Fed. Cir. 1991). In other words, if one inventor succeeds where numerous others failed, or if the patented invention in suit was highly successful in the market, such factors indicate an increased likelihood that the claimed invention was not obvious at the time of invention.

As plaintiff correctly points out, numerous questions of material fact preclude summary judgment at this stage. I have not heard from one skilled in the art so I don’t know whether combining these references would have been obvious. End of story.

As to secondary considerations, the commercial success of cards manufactured by Leighton, the state of the market for wireless smartcards at the time of invention, and the success or failure of others at the same time, all unresolved issues of fact on the present record.

**Conclusion**

Defendant's motion for summary judgment is denied. A final pre-trial order and all motions in limine are due June 9, 2006. All exhibits are to be filed on that date, along with objections to exhibits, as per my individual practice rules. I will schedule a final pre-trial conference over the summer to rule on all objections and in limine motions. A trial date will be set for the fall at the earliest date possible.

This constitutes the decision and order of the Court.

Dated: April 13, 2006

---

U.S.D.J.

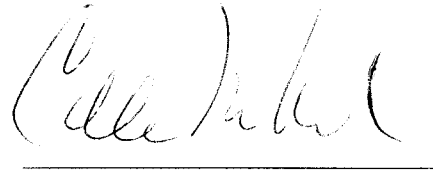
BY FAX TO ALL COUNSEL.

**Conclusion**

Defendant's motion for summary judgment is denied. A final pre-trial order and all motions in limine are due June 9, 2006. All exhibits are to be filed on that date, along with objections to exhibits, as per my individual practice rules. I will schedule a final pre-trial conference over the summer to rule on all objections and in limine motions. A trial date will be set for the fall at the earliest date possible.

This constitutes the decision and order of the Court.

Dated: April 13, 2006

A handwritten signature in black ink, appearing to be "C. J. [unclear]", written over a horizontal line.

U.S.D.J.

BY FAX TO ALL COUNSEL.